

NETIO-230C/CS

FIRMWARE 4.0

Instruction manual

1. 8. 2012



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Preface

Thank you for purchasing a KOUKAAM product. To prevent incorrect installation or improper use of equipment please carefully read these Operating Instructions and the Quick Installation Guide, which is included in the package.

Carefully read the following notice. The device you have purchased operates under a certain voltage. Incorrect manipulation with the device may result in damage to the device or injury to the person handling it.

Important notice

1. The manufacturer is not liable for potential damage caused by incorrect usage or placing the device in an unsuitable environment.
2. The device is not intended for usage outdoors.
3. Do not use the device in an environment with strong vibrations.
4. If the device malfunctions, contact your vendor.
5. Unauthorised modification of this device can damage it or cause fire.
6. Prevent contact with fluids; do not expose the device to high temperatures.
7. Protect the device from falling.
8. Only devices approved for use in the electricity network may be connected.
9. If the device malfunctions, disconnect it from the electric power supply and contact your vendor.

1. Introduction

The **NETIO-230C/CS** is a multifunctional power supply controller. This device is intended to control power supply via web interface, telnet, or CGI commands. Thanks to the network administration technology based on IP protocol basis, the user can control or provide a power supply to a connected external device (appliance) via a computer connected to the LAN or Internet network. No special software is necessary to control the device, the Web interface is already integrated in the firmware. Using the web interface, you can easily control and set the entire device and individual outputs.

Imagine that you are travelling around the world and you can remotely or via a timer control the power supply to your electrical appliances, such as, computers, servers, routers, electric gates, security/surveillance system or other appliances.

1.1. Characteristics

- Integrated web server
- Support for a broad spectrum of browsers:
 - Internet Explorer
 - Mozilla Firefox
 - Opera
 - Google Chrome
- Four controllable ports
- Four manual control buttons
- Serial port for control of the device
- Serial tunnel (version NETIO-230CS)
- Support for HTTP, SMTP, SNTP, DHCP, DNS, Telnet protocols
- Control using CGI commands
- Possibility to login using an encrypted password
- User authorisation
- LED indication of the actual state of each port
- Safe anti-electric shock design, fire-resistant materials
- Time control - you can set the on/off time for the requested port
- Default setting of port state after switch-on and restart of the device
- **Watchdog** function for resetting frozen network device

- E-mail notification
- Over-voltage protection on the entire device and all the four outputs

1.2. Specifications

Power supply voltage:	90-250 V AC
Maximum switched current:	10 A
Dimensions:	220 × 40 × 125 mm (w × h × d)
Network interface:	1x RJ-45 10/100 Mbit/s
Additional interface:	NETIO 230C: 1x CANON DB9/F (RS232) NETIO 230CS: 2x CANON DB9/F (RS232)

1.3. Minimum system requirements

- Computer with Internet browser (Microsoft Internet Explorer, Opera, Mozilla Firefox, ...) with JavaScript support enabled.

2. Equipment interface

2.1. Front view, NETIO-230C



Figure 1. NETIO-230C, front view

1. Four indicator LED diodes
2. Manual buttons for switching outputs on/off
3. Serial port RS232
4. Connector RJ-45 - an interface for connection to a computer network.

2.2. Front view, NETIO-230CS



Figure 2. NETIO-230CS, front view

1. Four indicator LED diodes
2. Manual buttons for switching outputs on/off
3. Serial port RS232
4. Connector RJ-45 - an interface for connection to a computer network.
5. Serial tunnel RS232

2.3. Back view, NETIO-230C/CS

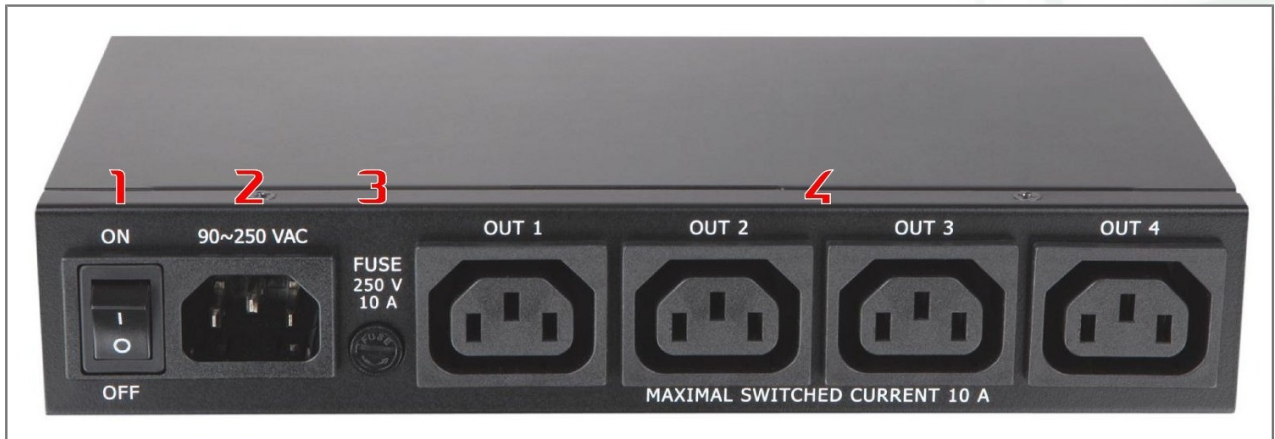


Figure 3. NETIO-230C/CS, back view

1. Main Switch
2. Power supply 90-250 VAC
3. Fuse holder for main fuse, 10A
4. Switched outlets 230V

3. Installation

Before using the device for the first time, check whether the power supply voltage setting is 90-250 V AC.

3.1. Connection of the device

1. Connect the NETIO-230C/CS to the computer network (switches, router) using the network cable with RJ-45 connectors.
2. Connect the NETIO power supply cable to the socket.
3. Connect the device, which you want to control, to the appropriate output.
4. Switch on the NETIO-230C/CS using the switch on the back of the device.

4. Initial configuration

1. On the enclosed CD, you will find the file **NetioDiscover.exe**, execute it.
2. Click the button **Discover**. This lists all the accessible NETIO devices in your network.
3. Select the device from the list and click the button **Device setup**.

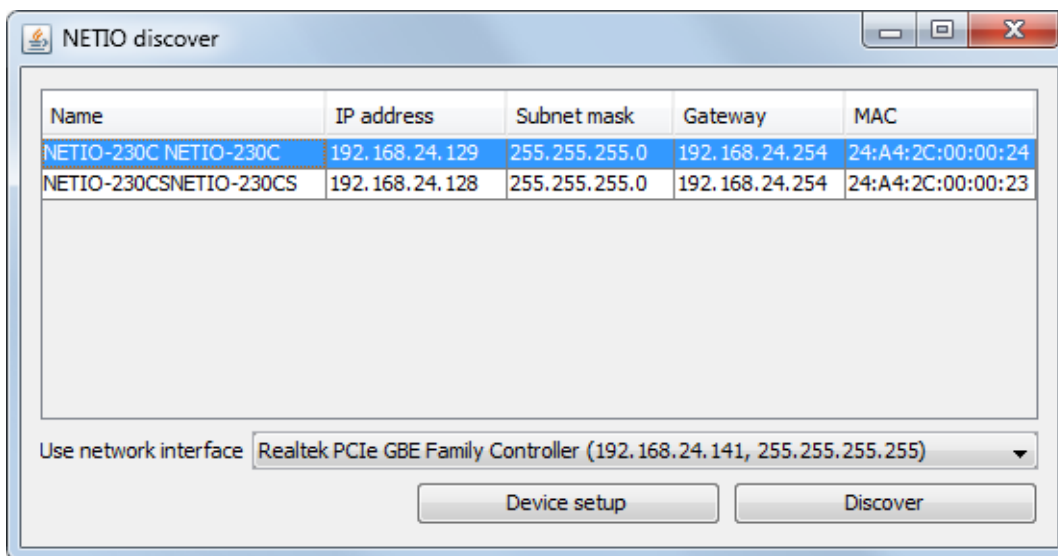


Figure 4. Devices found

The configuration window appears - **IP address**, **Subnet mask** and **Gateway IP Address**.

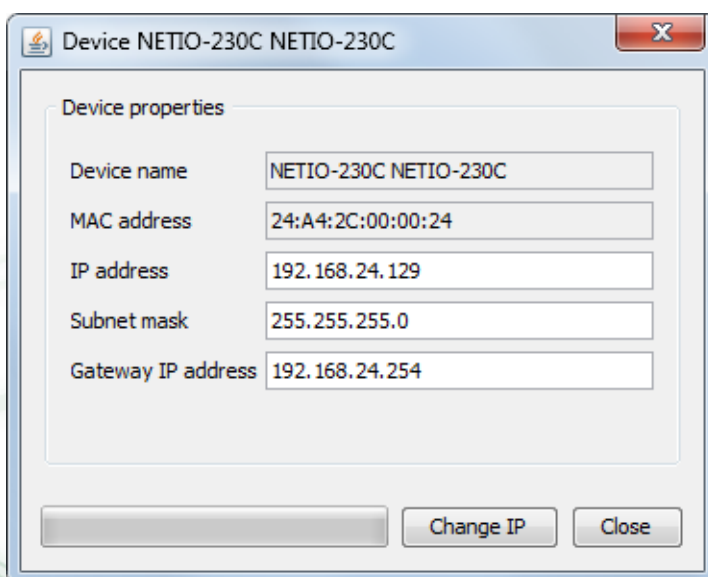


Figure 5. Configuration of the device

After editing the network configuration parameters, click the **button Change IP**, which saves the configuration and restarts the device. **If you have a DHCP server in the network and you do not want to change the network settings, you can skip the manual setting and continue to the next step.**

The default IP address of the device is **192.168.10.100** if you do not have a DHCP server in the network. If you have, the device obtains an IP address automatically from the DHCP server.

4. You access the web interface of the device either by entering the IP address into the Internet browser, or by double-clicking the IP address of the device in **NETIO discover**.
5. The login page is displayed. Enter the **user name**, **password** and click the **Log in** button.

The default username is: **admin**, the password is: **admin**.

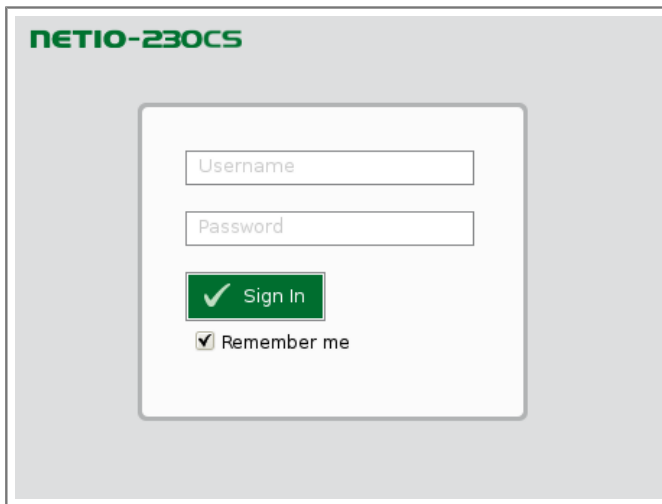



Figure 6. Login screen

To login to the web interface, it is necessary to have JavaScript support enabled in the browser.

5. Control and configuration

5.1. Outlets

5.1.1. Manual outlet control

In the left menu, choose  **Outlets** item. You will be provided with the outlet overview. Each outlet is directly controlled by four associated icons. All outlets at once are controlled by two icons at the bottom of the page. The active icon is green, the inactive icon is grey.

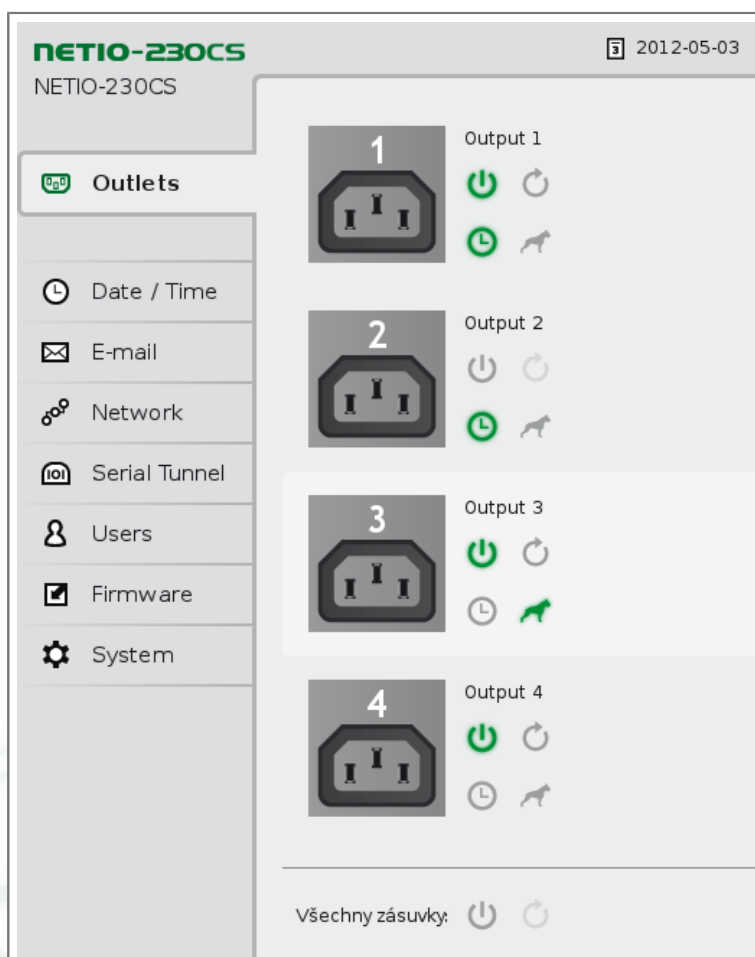





Figure 7. Manual outlet control

Use icon  **On/Off** for direct control of outlet power supply. Icon  **Restart** performs restart of device plugged into the outlet. During restart, there is a delay between power off and power on of the outlet, which can be adjusted in section Section 5.1.2, "General outlet settings".

All outlets can be controlled at once by means of two icons at the page bottom. Depending on current outlet state, it is possible either to power off or power on all outlets and also to restart them.

5.1.2. General outlet settings

Use panel  **General settings** to configure various outlet related settings. **Outlet name** serves for outlet identification and is displayed above its control icons. **Reset delay** is a number of seconds to wait between power off and power on during outlet restart cycle. Check last option to power on the outlet by default after NETIO starts up such as after power outage.

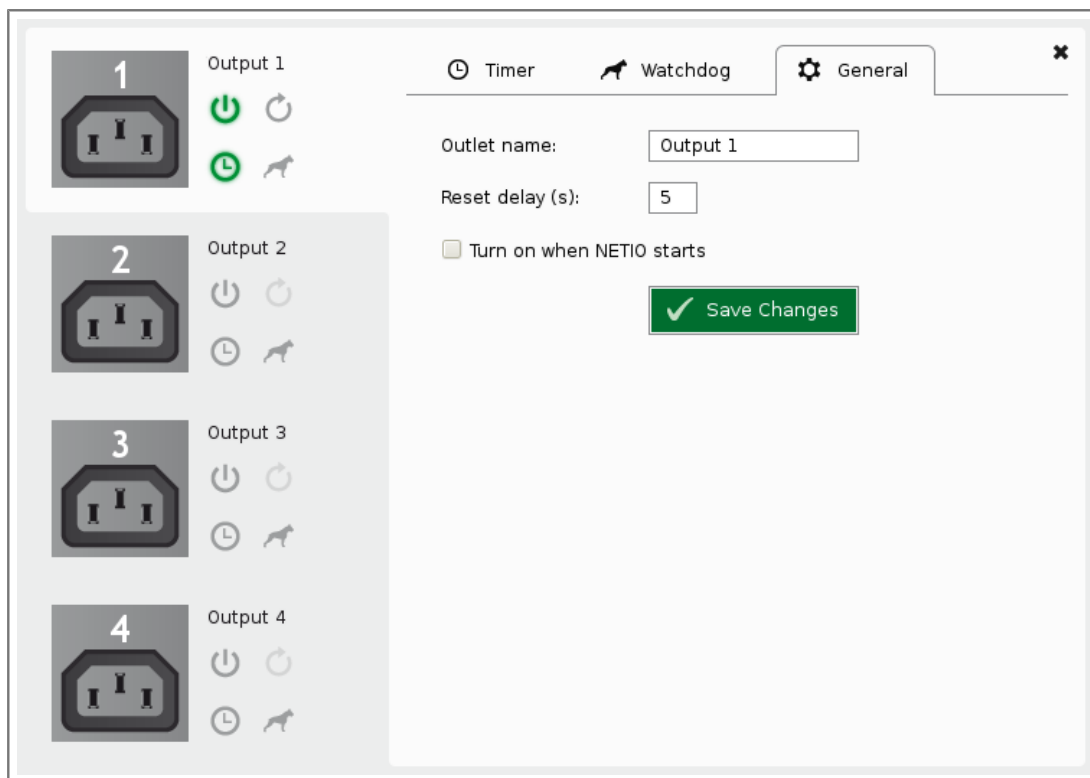



Figure 8. General outlet settings

Save configuration changes by clicking **Save changes** button.

5.1.3. Watchdog

Use  **Watchdog** function to monitor various network devices. If monitored device does not respond to **Ping** request in a given time interval, the corresponding outlet will be turned off and on. The delay between power off and power on is configurable. It is possible to limit number of outlet restarts so that it does not happen infinitely.

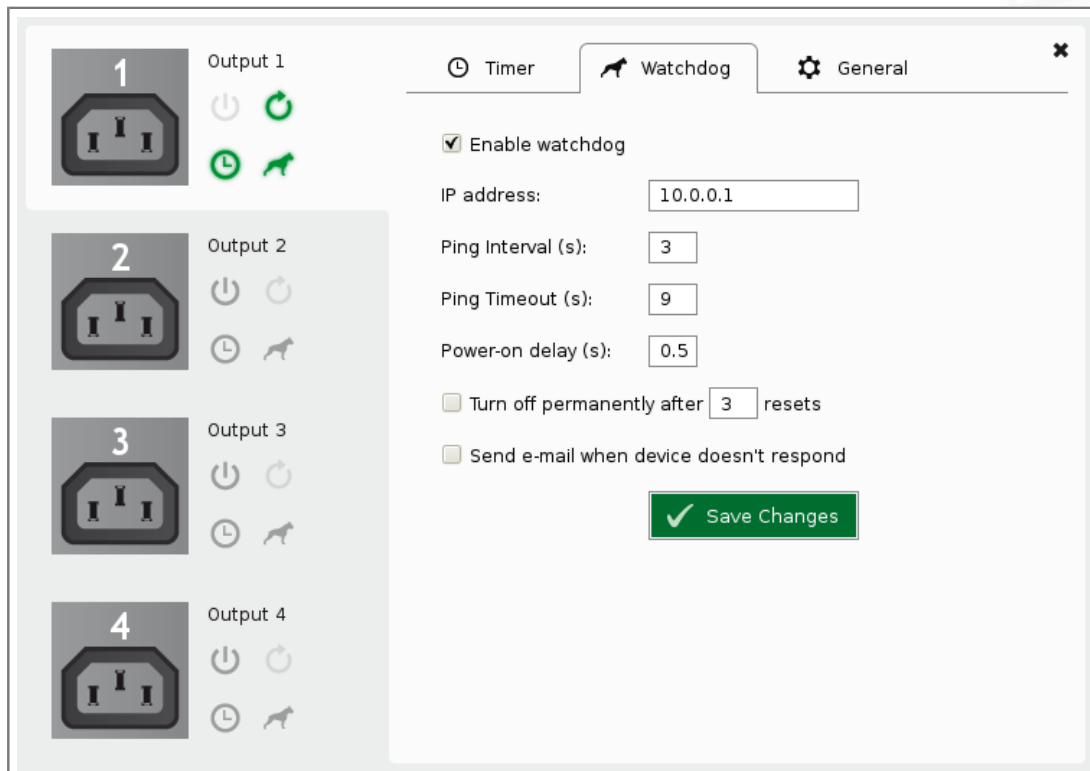


Figure 9. Watchdog settings

- IP address:** IP address of monitored device.
- Ping timeout:** maximum delay between Ping request and response before it is considered unsuccessful.
- Start up delay:** **Watchdog** will postpone querying monitored device for this many seconds after outlet power up, so that the device can fully start up.
- Ping interval:** how often will be Ping query sent to monitored device (in seconds).

Save configuration changes by clicking **Save changes** button.

5.1.4. Timer

⌚ **Timer** function allows for outlet power on/off at certain times. It is possible to configure one-time or periodic action.

The screenshot displays the configuration interface for the NETIO-230C/CS device. On the left, there are four output ports labeled Output 1, Output 2, Output 3, and Output 4, each with a power icon and a timer icon. The 'Timer' tab is selected, showing the following settings:

- ☒ Enable timer
- ☐ Turn on once
- ☒ Repeat


For the 'Repeat' option, the 'Days' are set to Mon, Tue, Wed, Thu, and Fri. The 'From' time is 19:00:00 and the 'To' time is 23:59:59. A green 'Save Changes' button is at the bottom.

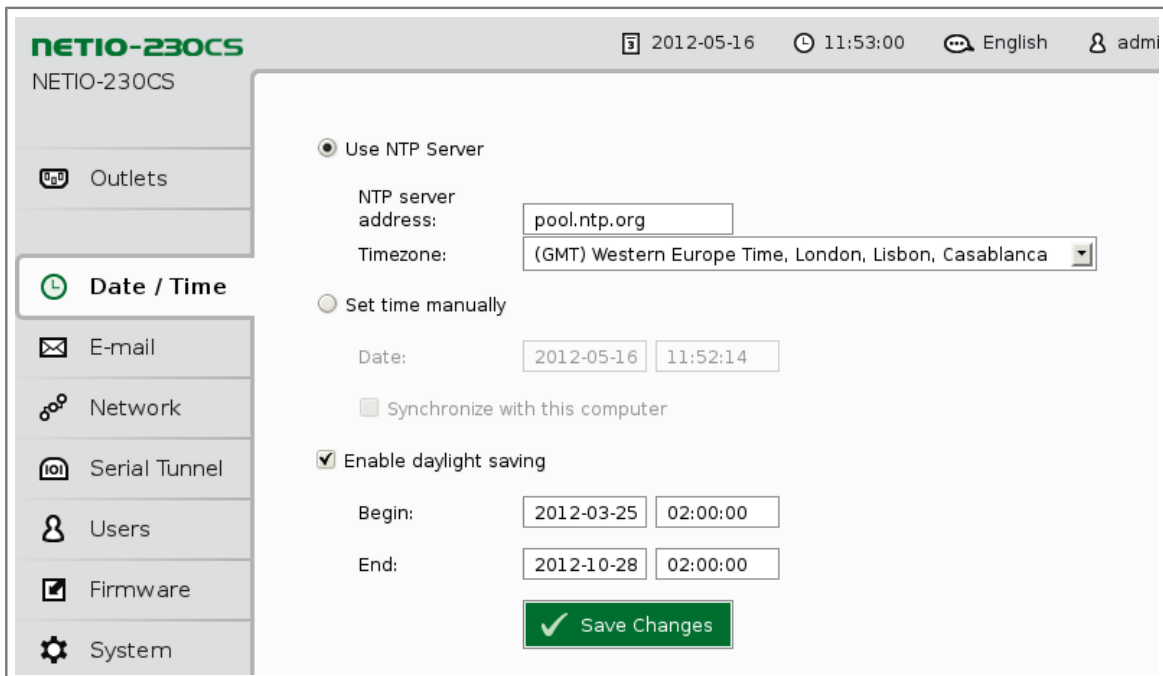
Figure 10. Timer settings

5.2. Device configuration

Please pay attention to device configuration, so that it can function properly.

5.2.1. Time settings

Click  **Date and time** in the left menu. The device supports three ways of time configuration. Time can be set manually or synchronization with a NTP server or client's computer can be used. Daylight saving time option is also available.



NETIO-230CS

2012-05-16 11:53:00 English admin

NETIO-230CS

Outlets

Date / Time

E-mail

Network

Serial Tunnel

Users

Firmware

System

☒ Use NTP Server

NTP server address: pool.ntp.org

Timezone: (GMT) Western Europe Time, London, Lisbon, Casablanca

☐ Set time manually

Date: 2012-05-16 11:52:14

☐ Synchronize with this computer

☒ Enable daylight saving

Begin: 2012-03-25 02:00:00


End: 2012-10-28 02:00:00

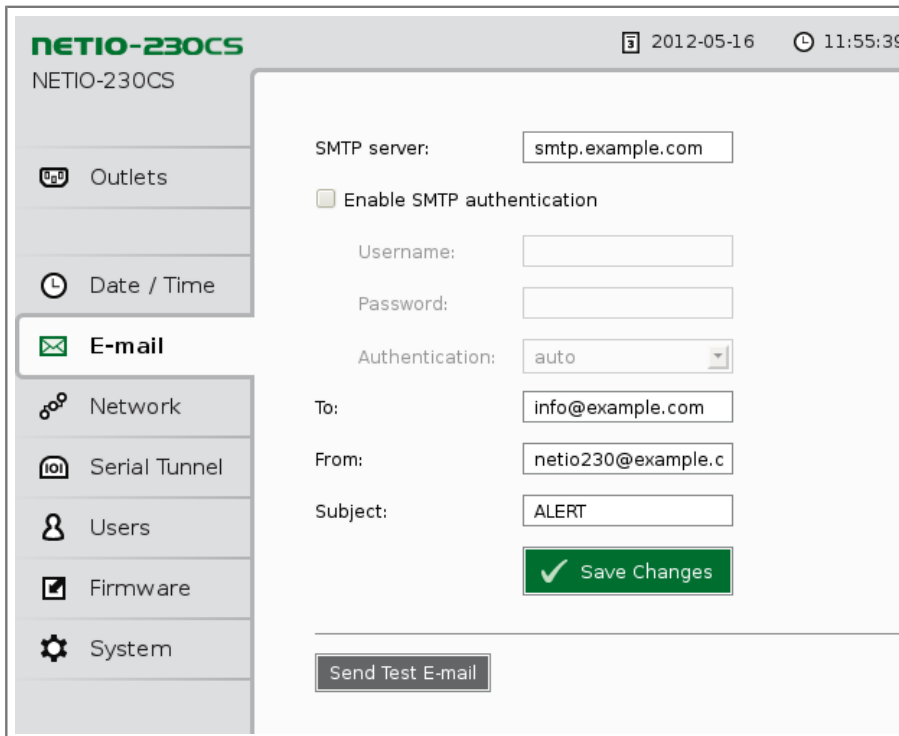
Save Changes

Figure 11. Date and time configuration

Save date and time settings by clicking **Save changes** button.

5.2.2. E-mail configuration

Click  **E-mail** from left menu. The setting will be used to send e-mail reports from this device.



The screenshot shows the NETIO-230CS web interface. The left sidebar contains a menu with icons and labels: Outlets, Date / Time, E-mail (highlighted with a green envelope icon), Network, Serial Tunnel, Users, Firmware, and System. The main content area is titled 'NETIO-230CS' and shows the E-mail configuration settings. At the top right of the main area, the date '2012-05-16' and time '11:55:39' are displayed. The settings include: SMTP server (text box with 'smtp.example.com'), a checkbox for 'Enable SMTP authentication' (unchecked), Username (text box), Password (text box), Authentication (dropdown menu with 'auto' selected), To (text box with 'info@example.com'), From (text box with 'netio230@example.c'), and Subject (text box with 'ALERT'). Below these fields are two buttons: a green 'Save Changes' button with a checkmark icon, and a grey 'Send Test E-mail' button.

Figure 12. E-mail configuration

SMTP server: mailserver used to send message.

Enable SMTP authentication: check this option, if mail server requires authentication.

Note: NETIO-230C/CS does not support STARTTLS encryption.


To: message recipient address.

From: address, that will appear as message sender.

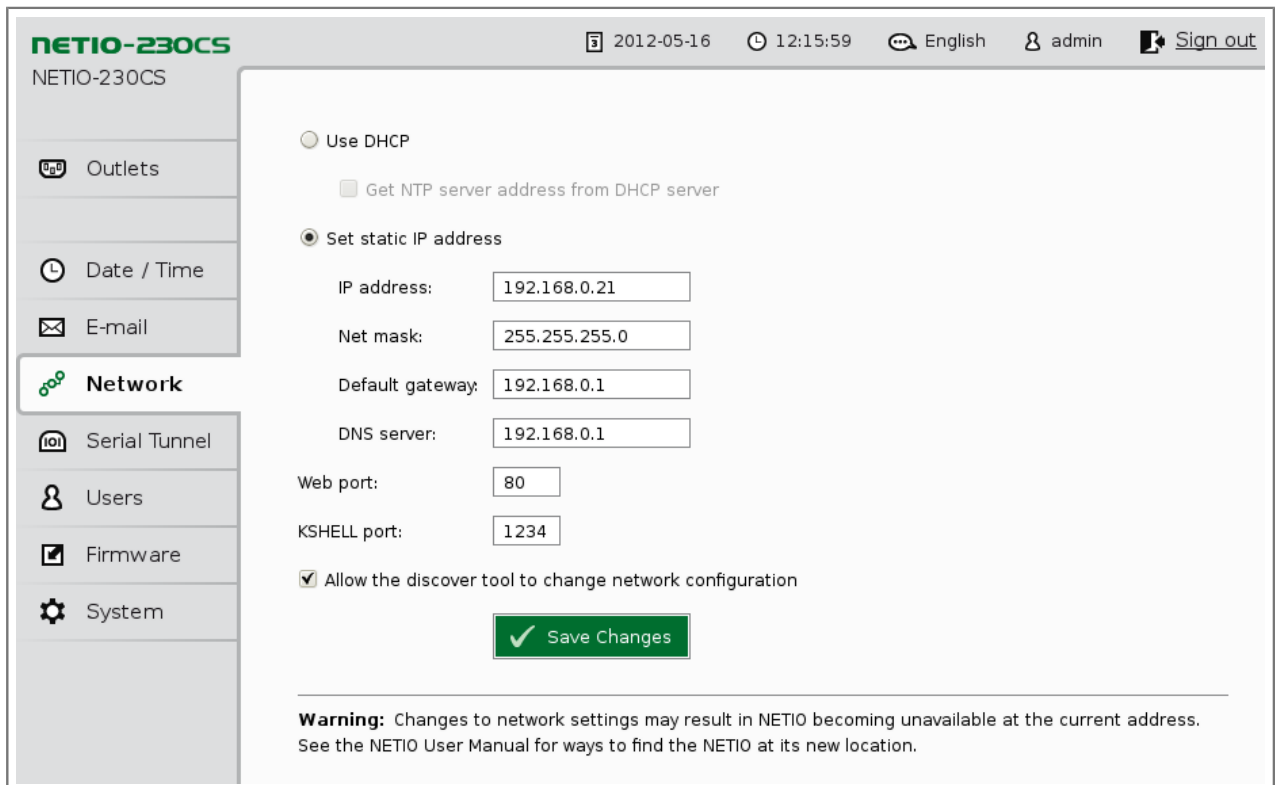
Subject: message subject.

Save e-mail settings by clicking **Save changes** button. It is possible to verify configuration by clicking **Send test e-mail** button.

5.2.3. Network settings

Click  **Network** in the left menu. If there is a DHCP server available, the device will automatically configure various network related parameters, such as IP address, network mask and gateway. Check **Use DHCP** option to enable this behavior. Use **Set static IP address** option to manually configure these parameters. Static IP address is also required for successful firmware upgrade. Please read Section 5.2.6, "Firmware upgrade" chapter for further details.

Configuration items **Web port** and **KSHELL port** sets Web and KSHELL ports. Default settings are sufficient for most users.



NETIO-230CS

2012-05-16 12:15:59 English admin Sign out

NETIO-230CS

Outlets

Date / Time

E-mail

Network

Serial Tunnel

Users

Firmware

System

☐ Use DHCP

☐ Get NTP server address from DHCP server

☒ Set static IP address

IP address: 192.168.0.21

Net mask: 255.255.255.0


Default gateway: 192.168.0.1

DNS server: 192.168.0.1

Web port: 80

KSHELL port: 1234

☒ Allow the discover tool to change network configuration

 Save Changes

Warning: Changes to network settings may result in NETIO becoming unavailable at the current address. See the NETIO User Manual for ways to find the NETIO at its new location.

Figure 13. Network configuration

Save network settings by clicking **Save changes** button.

5.2.4. Serial Tunnel (NETIO-230CS only)


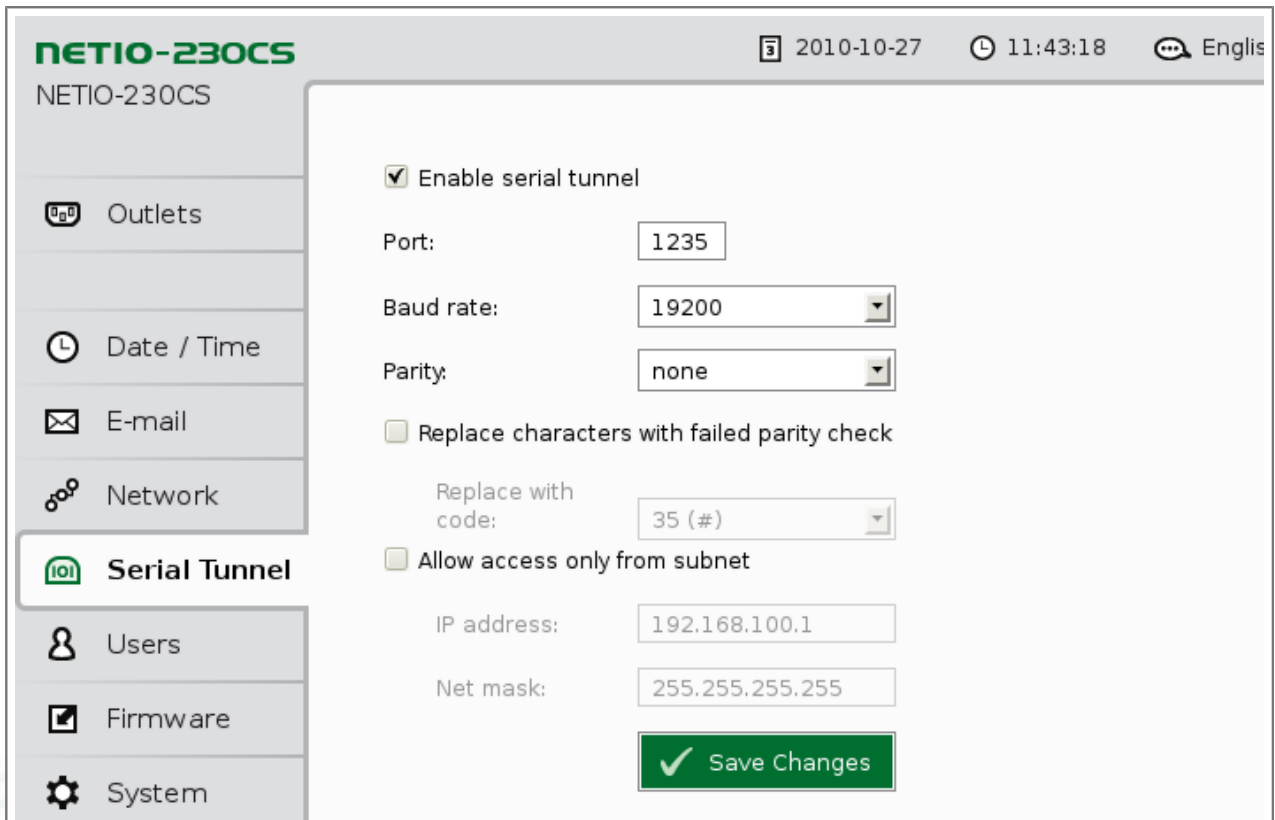
NETIO-230CS supports  Serial Tunnel, allowing control of another RS-232 device over serial line. Such device should be connected to port marked with tunnel symbol on the NETIO front panel.



Figure 14. Serial Tunnel symbol on the front panel of the NETIO-230CS device

The Serial Tunnel is available on the IP address of NETIO-230CS on port no. 1235 by default. This port number, as well as serial port baud rate and parity settings, can be changed here.




The screenshot shows the NETIO-230CS web interface. The top bar displays the date (2010-10-27), time (11:43:18), and language (Englis). The sidebar on the left contains navigation links: Outlets, Date / Time, E-mail, Network, **Serial Tunnel** (highlighted), Users, Firmware, and System. The main configuration area for the Serial Tunnel includes the following settings:

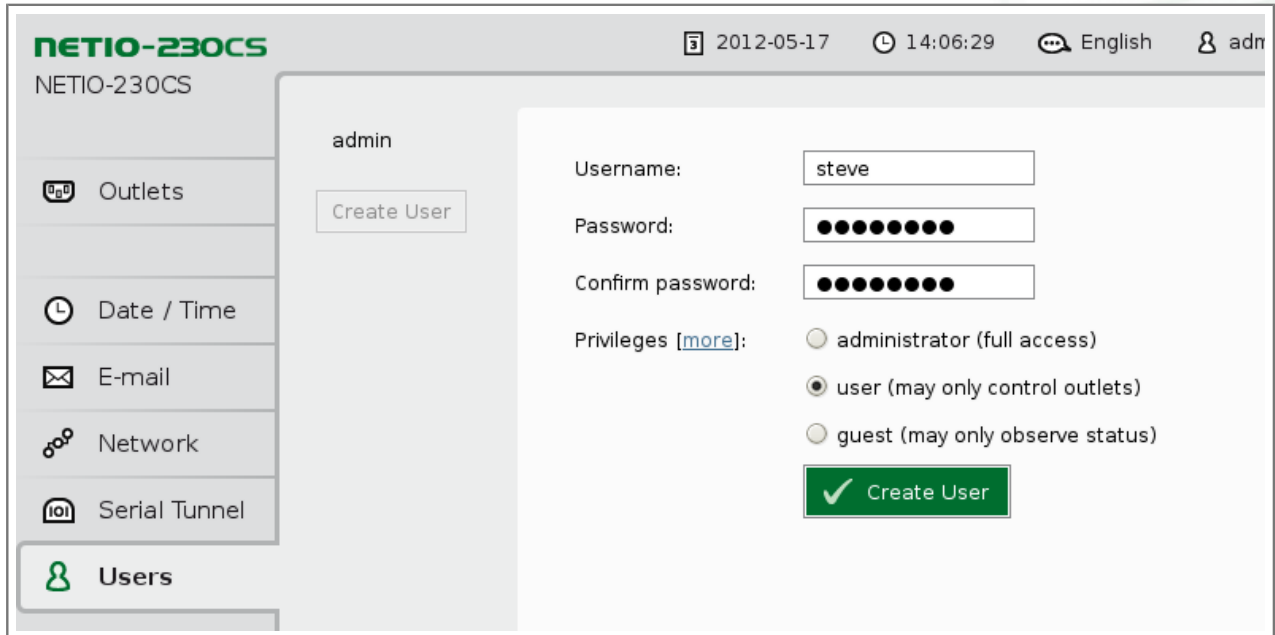
- ☒ Enable serial tunnel
- Port:
- Baud rate:
- Parity:
- ☐ Replace characters with failed parity check
- Replace with code:
- ☐ Allow access only from subnet
- IP address:
- Net mask:
- ☒ Save Changes

Figure 15. Serial Tunnel configuration

For increased security, access to the tunnel can be limited to clients within a defined set of IP addresses. To limit access, enter IP address of device or computer and corresponding subnet mask.

5.2.5. User account management

If the device is used by multiple users, using accounts with different privileges is advised. In the left menu, click  **Users** menu item. There are three different user types:



The screenshot shows the NETIO-230CS web interface. The left sidebar contains a menu with icons and labels: Outlets, Date / Time, E-mail, Network, Serial Tunnel, and Users (highlighted with a green background). The main content area is titled 'admin' and contains a 'Create User' button. Below this, there are four form fields: 'Username:' with the value 'steve', 'Password:' with masked characters, 'Confirm password:' with masked characters, and 'Privileges [more]:' with three radio button options: 'administrator (full access)', 'user (may only control outlets)' (which is selected), and 'guest (may only observe status)'. At the bottom right of the form is a green 'Create User' button with a checkmark icon.

Figure 16. Add user

Admin: user with full authorisation

User: user that can control the ports, but cannot change system settings

Guest: user that does not have the rights to change any settings and can only see the current state of the ports

Pick one of above options as necessary. There is option of finer grained access control. List of all available permissions will be available after clicking **More** hyperlink:

NETIO-230CS

2012-05-17 14:09:31 English admin Sign

admin

Create User

Username: steve

Password: ●●●●●●●●

Confirm password: ●●●●●●●● ✓

Privileges [\[less\]](#): user


- ☒ view outlet status
- ☒ control outlets
- ☒ view outlet settings
- ☐ change outlet settings
- ☒ view NETIO settings
- ☐ change simple settings (date/time, e-mail)
- ☐ change advanced settings (network, system)
- ☐ manage users
- ☐ upgrade firmware, reset to factory defaults

✓ Create User

Figure 17. Detailed user permissions management

Confirm your settings by clicking **Create user** button. User accounts can be adjusted later in similar way.

5.2.6. Firmware upgrade

In section  **Firmware**, firmware of your device can be upgraded. New versions are available at http://www.koukaam.se/showproduct.php?article_id=1479.

Warning: use Chrome browser and static IP address configuration, otherwise the upgrade process may fail.

Select file with new firmware (.bin extension) and continue by clicking **Upgrade** button.

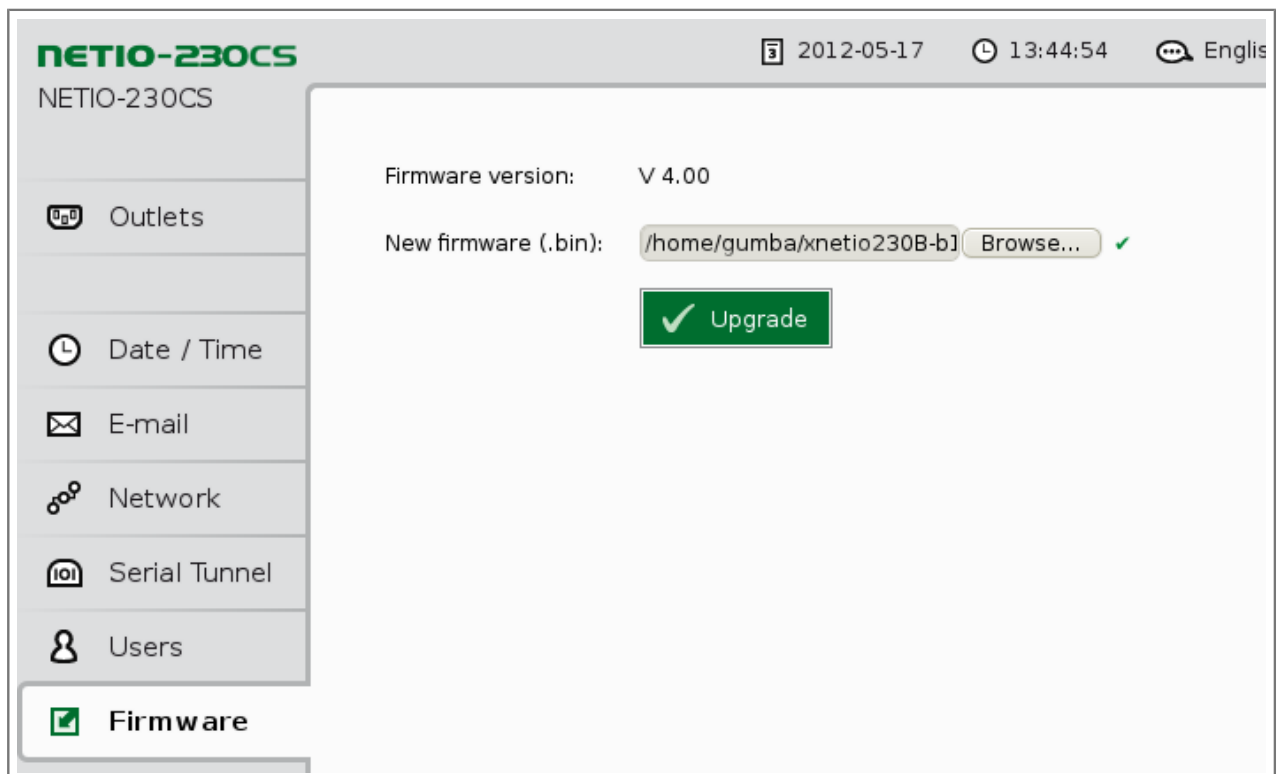


Figure 18. Select file and upgrade screen

NETIO will restart several times during upgrade. **Do not turn it off, otherwise there is threat of permanent failure.** You will be continuously notified about upgrade progress until it is finished.

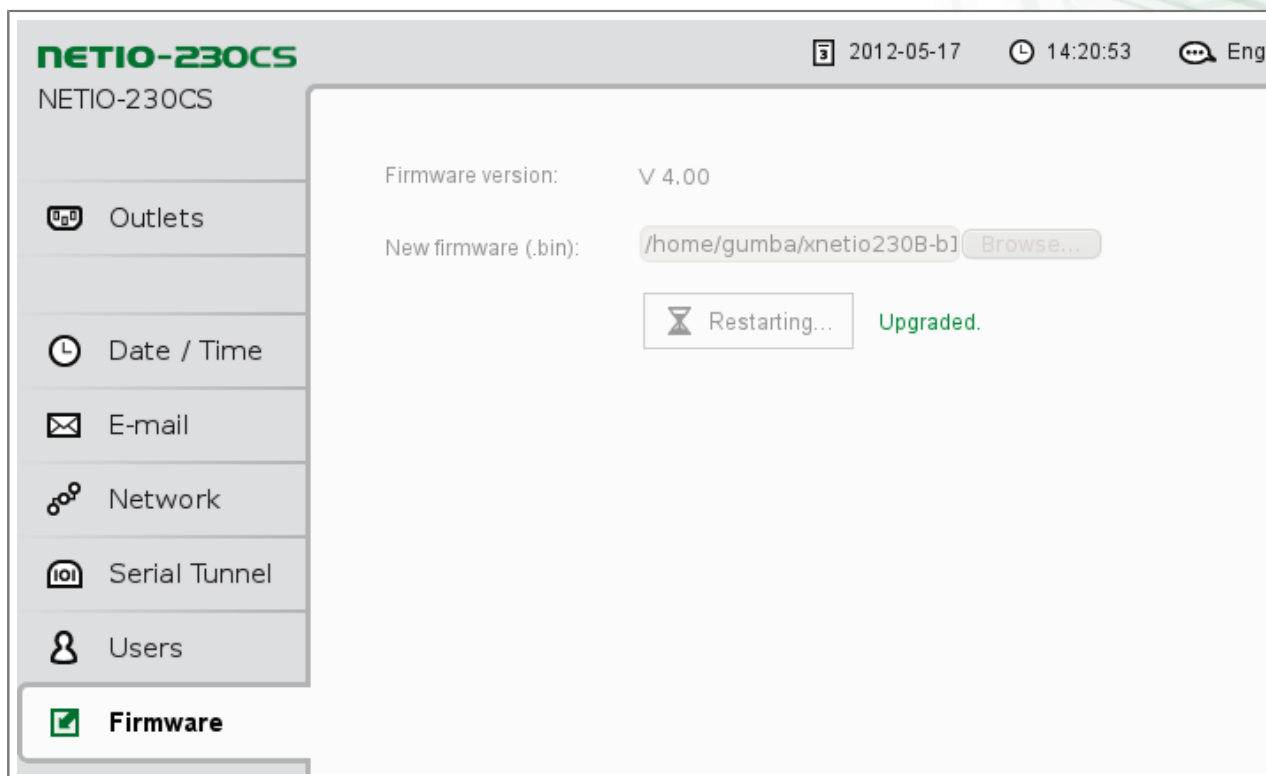
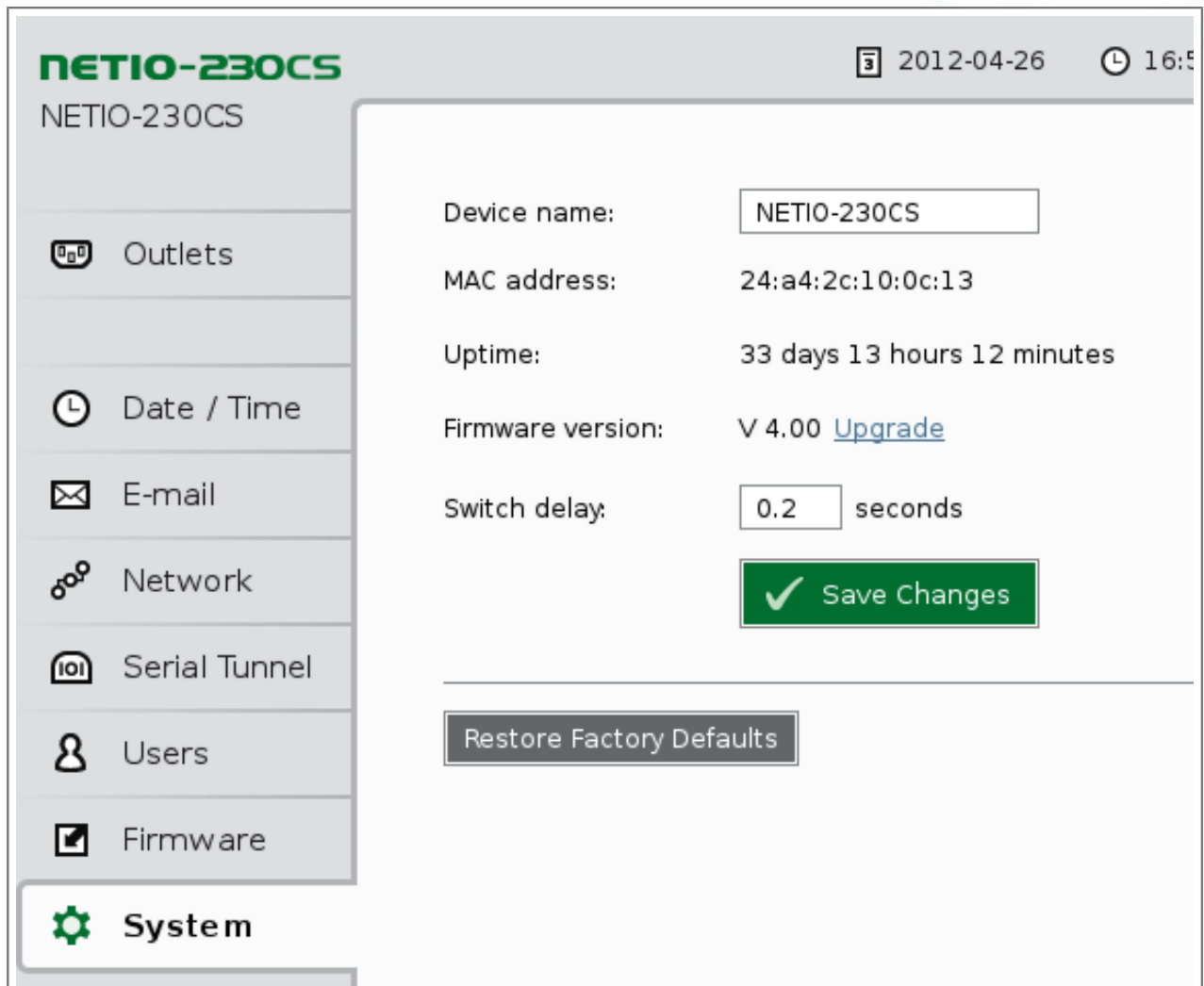


Figure 19. NETIO restarts after finished upgrade

Login screen after restart indicates, that upgrade process has successfully finished.

5.2.7. System settings

In this section, you can do basic settings and view basic system parameters.



NETIO-230CS 2012-04-26 16:5

NETIO-230CS

- Outlets
- Date / Time
- E-mail
- Network
- Serial Tunnel
- Users
- Firmware
- System**

Device name: NETIO-230CS

MAC address: 24:a4:2c:10:0c:13

Uptime: 33 days 13 hours 12 minutes

Firmware version: V 4.00 [Upgrade](#)

Switch delay: 0.2 seconds

Figure 20. System settings

Device name:	Name of your device.
MAC address:	Hardware address of this device.
Uptime:	Time from last restart.
Firmware version:	Current firmware version and upgrade link.
Switch delay:	Delay between turn on of two and more outlets.
Restore factory defaults	Reload default settings.

5.3. Control of the device via Telnet, CGI or serial link

5.3.1. Encrypted login

For login with secure password, you must first get the hash code from the device. You get this either in the return code after connection via KShell or the CGI command hash. For calculation, the MD5 sum is used that has been calculated as the following sum <name><password><hash>. This is a 128b number (32 characters) transmitted in a hexadecimal format.

5.3.2. Communication via KShell interface

The connection procedure is shown in the following example:

1. Open the window with command line
2. Enter the command **telnet 192.168.10.100 1234** (enter the address after the address of your device, will 1234 with the port, which you have set for KShell on the device)
3. The device should list a response similar to the following: **100 HELLO EB5D61F6**. The last 8 characters comprise the hash string used for encrypted login.
4. Now you can login with the command:

login name password

where **name** is the username and **password** is your password. If you have entered the correct username and password, the device response is **250 OK**. You are now logged on and you can control the NETIO device using the commands from the following chapter.

Every communication session via KShell interface has limited validity. In case of inactivity of approximate duration one minute, the session will be terminated automatically. If you need to keep the session active, you can use the command **noop**.

5.3.3. CGI control

The NETIO-230C/CS device can be also easily integrated into your applications using CGI commands.

CGI control of the device is executed by commands in the following format:

http://<IP address>/cgi/control.cgi?<command>&<command>

Replace the string **<IP address>** with the IP address of your device. The string **<command>** is the actual command.

CGI commands:

hash=hash

Sends a request for an encrypted login string. The command returns **<html> hash </html>**.

login=<plc>:<user name>:<password>

Login to the device. Use command login=plain for unencrypted login. For encrypted login, use command login=crypted. Other command parameters are username and password.

The return values are described in chapter Section 5.3.7, "Return values". In case of using CGI commands, the return value is enclosed in the HTML tags **<html> a </html>**.

quit=quit

Logout from the system. The return value is **<html>110 BYE</html>**. This command can be used only in CGI compatible mode.

port=<list>|xxxx>

The parameter list - lists the output state in the format **<html> port1 port2 port3 port4 </html>**, where **port1** to **port4** are values **0** for output off and **1** for output on. The parameter **xxxx** is a string for setting the port. Replace symbol **x** with **0**, **1**, **u** or **i** just as applies to port setting via Telnet.

All commands can be shortened to individual symbols. For example, the command **port=list** can be shortened to **p=l**. The commands can be joined in a string using the symbol **&**.

Example:

http://192.168.200.84/cgi/control.cgi?login=p:admin:admin&p=10ui

This command executes login to the device at the address **192.168.200.84** with username **admin**, password **admin** and sets the output. It switches on output 1, switches off output 2, leaves output 3 in its current state and interrupts output 4 for the time set in the actual setting of the output.

5.3.4. Using kshell.cgi interface to control the device

NETIO 4.0 has a new control interface. It contains both the original control.tgi (now control.cgi) and the new kshell.cgi **kshell.cgi** script.

Use it as follows:

http://192.168.1.10/cgi/kshell.cgi?session=ssid {session_id}&cmd={kshell_command}

Session_id is a hexadecimal number returned during the initialization of communication. Kshell_command is one of commands described in the table below.

Initialize	http://192.168.1.10/cgi/kshell.cgi?session=init {salt}
Use while communicating	http://192.168.1.10/cgi/kshell.cgi?session=ssid 72b4c5f313c2133df8da6581ec41b393&cmd=kshell_command
Close	http://192.168.1.10/cgi/kshell.cgi?session=close 72b4c5f313c2133df8da6581ec41b393

5.3.5. Communication via a serial link

For communication with the NETIO-230C/CS device via a serial link, connect the device to a PC via a direct cable with **Canon DB9F** and **DB9M** connectors. The communication parameters are as follows:

- Transmission speed: 19200 baud
- Data format: 8N1

The command format is identical to that of the commands for communication via KSHell interface. The list of commands is in the following chapter.

Note: for communication via serial link, you do not need to login as applies to communication via KSHell interface. This means that after connection of the cable, you can directly enter the kshell commands to the terminal.

5.3.6. List of telnet, kshell.cgi and serial link commands

Basic commands

login <name> <password>

Sign in using the plain password. Example: Use command **login admin admin** to log in with username **admin** a password **admin**.

login <name> <md5>

Sign in using the encrypted password.

version

Gets firware version.

alias

Gets the device name.

alias <name>

Set the device name.

quit

Sign out. In case of changes in system settings, perform restart of the device.

reboot

Sign out, closes the connection and restarts the device.

noop

Keeps the connection alive, performs no action.

uptime

Gets the current uptime.

Commands for system settings.

system time <YYYY/MM/DD,HH:MM:SS>

Sets the local time.

system time

Gets the local time in the format YYYY/MM/DD,HH:MM:SS.

system dst <mode> <dst_start> <dst_end>

Sets the daylight saving settings.

system dst

Gets the daylight saving settings in the format <mode> <dst_start> <dst_end>

system webport <port>

Sets the web port of the device. The default value is 80.

system webport

Gets the web port of the device.

system kshport <port>

Sets the kshell port of the device.

system kshport

Gets the kshell port of the device. The default value is 1234.

system dhcp

Gets the DHCP client parameter setting.

system dhcp hostname <enable | disable>

Enables sending the name of the DHCP server.

system dhcp sntp <enable | disable>

Enables setting the SNTP server according to the IP address set on the DHCP server.

system reset

Restores the device to factory defaults. After posting this command, factory defaults is restored and system restarts.

system timezone <+ | -offset>

Sets local timezone. Enter the time offset in minutes.

system timezone

Gets time offset of the local time from UTC. The return value is in minutes.

system sntp

Gets SNTP client settings.

system sntp <enable | disable> <sntp_ip | domain>

Sets SNTP client. Enables or disables time synchronization with the SNTP server. The server address can be entered as an IP address or as a domain name.

system dns <ip>

Sets the IP address of the DNS server. You have to restart the system using the command **reboot** or turn off and on your Netio for the changes to take effect.

system dns

Gets the set address of the DNS server.

system swdelay <delay>

Sets the delay between turning on of two outputs. Enter the value in tenths of seconds.

system swdelay

Gets the delay between turning on of two outputs.

system discover <enable | disable>

Enables/disables network parameter settings from the discover utility.

system discover

Gets whether the system discover selection is enabled or disabled.

system eth

Gets the network interface settings in the format: **<dhcp | manual> <ip_address> <mask> <gateway>**

system eth <dhcp | manual> [<ip_address> <mask> <gateway>]

Sets the network interface - IP address, network mask and gateway are set only if the manual parameter is selected. For the changes to take effect, it is necessary to either restart the system with the command reboot, or switch the NETIO off/on.

Example: The system command **eth manual 192.168.10.150 255.255.255.0 192.168.10.1** sets the network address **192.168.10.150**, network mask **255.255.255.0** and default gateway to **192.168.10.1**.

system network

Gets network settings in the format: **<webport> <kshport> <dhcnpnt> <mode> <IP> <mask> <gateway> <DNS>**

system network <webport> <kshport> <dhcnpnt> <mode> <IP> <mask> <gateway> <DNS>

Network settings.

system update

Switch to the upgrade firmware mode.

system mac

Gets MAC address of the device.

system reboot

Reboots the device.

Port commands

port list [xxxx]

- without parameter gets the state of all ports
- xxxx is a command for control of all ports simultaneously - in place of **x** enter the commands:
 - 0 - deactivate output
 - 1 - activate output
 - i - call interruption of a given output
 - u - leave output unchanged

Example: The command **port list 01ui** deactivates output 1, activates output 2, leaves output 3 unchanged and interrupts output 4.

port elist

Gets port settings in the format: **<name> <state> <wd> <wd_ip> <mode> <wd_int> <wd_to> <timer_mode> <on_time> <off_time> <ws>**.

port setup <output> [<output_name> <mod: manual | timer> <interrupt_delay> <PON_status>]

Command for setting output parameters - the meaning of the parameters is as follows:

<output_name> - Entered in quotation marks (it is possible to omit the quotation marks if it does not contain whitespaces)

<mod: manual | timer> - Selection of output mode.

<PON status> - State after turning the device on: 0 - off / 1 on

Example: The command **port setup 1 "output 1" manual 2 1** sets output 1 name of output 1, activates manual control, sets the interruption time to 2 seconds and sets the status upon turning on to on.

port timer <output> <time_format> [<mode: once | daily | weekly> <on-time> <off-time>] <week_schedule>

Timer settings:

<output> - the number of the output that is being set

<time_format> - set time format

t:	HH:MM:SS
dt:	YYYY/MM/DD,HH:MM:SS
ux:	xxxxxxxx (unsigned long with prefix 0x<hex>, 0<octal> or decimal)

<mode once | daily | weekly> - Selection of timer mode.

<on-time> - time when the output will be turned on.

<off-time> - time when the output will be turned off.

<week schedule> - a series of ones and zeros; the first number represents Monday, the last represents Sunday.

Example: The command **port timer 3 t weekly 08:00:00 17:30:00 1111100** switches the timer on at output 3. From Monday to Friday, output 3 will always be switched on at 08:00 and switched off at 17:30.

port timer <output> <d | t | u>

Gets the timer settings in the given format for the selected port.

port wd <output>

Gets **Watchdog** settings of given outlet in the following format:

**<wd: enable | disable> <wd_ip_addr> <wd_timeout> <wd_PON_delay>
<ping_refresh> <max_retry> <max_retry_poff: enable | disable> <send
email: enable | disable>**

port wd <output> <wd: enable | disable>

Enables or disables **Watchdog** function.

Example: The command **port wd 4 enable** activates the **Watchdog** function on output 4

port wd <output> <wd: enable | disable> <wd_ip_addr> <wd_timeout> <wd_PON_delay> <ping_interval> <max_retry> <max_retry_poff: enable | disable> <send_email: enable | disable>

Watchdog settings command. The meaning of the parameters is as follows:

<output> - number of the output you are setting

<wd: enable | disable> - enable/disable **Watchdog** function on the given output

<wd_ip_addr> - IP address of the monitored device

<wd_timeout> - maximum ping timeout of the monitored device, before it is restarted

<wd_PON_delay> - time interval (in seconds) in which the *Watchdog* function will not be active after output restart. During this period, the monitored device should start operating after restart.

<ping_interval> - interval (in seconds) in which queries will be sent to the device

<max_retry> - maximum number of output restart attempts if the monitored device does not respond to the ping commands. After expiry of the given number of attempts, the output remains inactive.

<max_retry_poff: enable | disable> - enable/disable **max_retry** function

<send_email: enable | disable> - enable/disable e-mail report when the monitored device is unavailable or the value of **max_retry** is exceeded.

Example: The command **port wd 2 enable 192.168.10.101 10 30 1 3 enable enable** enables the **Watchdog** function on output 2. The device at the address 192.168.10.101 will be monitored. The maximum response time of the monitored device will be 10 seconds. The ping commands will be sent at one-second intervals. If the monitored device does not respond within 10 seconds, output 2 is switched off for 30 seconds. If the device will not respond to ping commands after set switch-off three times in a row, the output is switched off for the fourth time and remains off. A warning e-mail message will be sent to you each time the output is switched off.

port mode <port_num> [<mode>]

- bez parametru <mode> vypíše aktuální režim portu,
- s parametrem nastaví režim portu.

port <output> [0 | 1 | manual | int]

Gets and sets output state:

- if you enter only the number of the output without any parameter, the command gets the output state (0 - off / 1 - on)
- output number with parameter **0/1** - turns the output on/off

- output number with parameter '**manual**' - switches output to 'manual' control
- output number with parameter '**int**' - interrupts the output

Example: The command **port 2 1** activates output 2.

E-mail commands

email server

Gets the IP address or domain name of the SMTP server.

email server <ip | domain_server_address>

Sets the IP address or domain name of the SMTP server.

email message

Gets e-mail settings.

email message <sender> <receiver> <subject>

Sets e-mail settings.

email auth

Gets settings of the SMTP authentication.

email auth <enabled> <method> <username> <password>

Sets settings of the SMTP authentication.

User and privileges commands

user get

Gets user privileges of the currently signed user in the format: <id> <name> <privileges>.

id user number, 0 - 5

name username

privileges Gets a list of user privileges in the format OCVMSNAUF, the meaning of the parameters is as follows:

- **O**: view outlet status
- **C**: control outlets
- **V**: view outlet settings
- **M**: change outlet settings (timer, watchdog)
- **S**: view NETIO settings (time, e-mail, network)
- **N**: change simple settings (time, e-mail)

- **A**: change advanced settings (network, tunnel)
- **U**: manage users
- **F**: upgrade firmware, reset to factory defaults

user add <name> <privileges> <GUI> <passwd>

Adds new user.

GUI Information for GUI, enter 0 if used via kshell

passwd password

user list

Gets a list of users in the format <id> <name> <privileges> <GUI>.

user delete <id>

Deletes user.

user passwd <id> <old> <new>

Changes user password.

user update <id> <name> <privileges> <GUI> <passwd>

Updates user settings.

5.3.7. Return values

100 HELLO <hash>

Device response after connection. Hash after HELLO can be used for encrypted login.

110 BYE

You have been signed out.

120 Rebooting....

Restarting.

130 CONNECTION TIMEOUT

Connection time-out.

250 OK

Command was successfully executed. The value returned by the called command may follow.

500 INVALID VALUE

Incorrectly entered value.

501 INVALID PARAMETR

Incorrectly entered parameter.

502 UNKNOWN COMMAND

Incorrectly entered or unknown command.

503 INVALID LOGIN

Incorrectly entered username or password.

504 ALREADY LOGGED IN

You are already signed in.

505 FORBIDDEN

You are not authorised to execute the given command. Sign in as user with higher privileges.

506 INPUT LINE TOO LONG

You have sent an input line that is too long. Shorten the command and repeat the action.

507 TOO MANY CONNECTIONS

Maximum number of connections was exceeded. Wait for someone to sign out. If inactive users are signed in, they will be disconnected automatically upon expiry of the time limit.

5.4. Manual control

Apart from control via PC, the device can also be controlled using the four buttons on the front panel. To switch the given output on or off, press the button for two seconds. If the output was off, it comes on, if it was on, it goes off. The buttons correspond to the outputs 1-4, from left to right. The state of the individual ports is signaled by the green diode above the button for the given port that either switches on or off.

5.5. Status LED diodes

The status LED diodes on the device inform the user not only about the status of the output, but also provide him with some information about the status of the system.

The green LED diodes provide information about the actual status of the output. If diodes 1-4 are green, the individual outputs are on. If any of the concerned diodes is not green, this specific output is off.

The red LED diodes inform the user about different statuses of the entire device. The following states are possible:

- | | |
|-------------------------|--|
| Red LED 1 is on: | initialisation of network interface; if it remains on, the network is not available. |
| Red LED 2 is on: | posting of query to DHCP |

Red LED 3 is blinking:	firmware update in progress
Red LED 4 is on:	device is in firmware update mode

5.6. Troubleshooting

5.6.1. Forgotten password. Reset to factory settings

If you forget your password, it is possible to reset to factory mode. This is done by pressing and holding buttons 1 and 2 with device on. Hold the buttons until the device beeps 2x. During the resetting process, all the LED diodes are red. As soon as reset is completed, the LED diodes go off.

5.6.2. Problem with update of firmware

If a problem arises during updating the firmware (e.g. power failures, or switching off the device before the update is completed), it is possible to force putting the device into operation in firmware update mode. You do this by pressing button 4 with device on. Hold the button until the device beeps. After this, connect to the device IP address via the browser. Continue to enter the firmware file as shown in the chapter which describes the firmware update process.

5.6.3. Changing the fuse

If the NETIO-230C/CS stops working and no indication LEDs are not shining, it is possible that the fuse has been blown. Before actual replacement of the fuse, make sure that the NETIO-230C/CS **IS OFF** and **DISCONNECTED FROM THE POWER SUPPLY**. Also disconnect all the devices connected to the outputs. To replace the fuse, unscrew the fuse holder (ideally using a flat screwdriver). Always replace the fuse with a new fuse of same type (250V 10A, type F). After insertion of the correct fuse, replace the plastic holder and screw it into place. Connect the power supply cable and try to switch on the device. Before reconnecting all the devices to the outputs, check whether the fuse was not blown by a fault on the connected devices.

Conclusion

The manufacturer bears no responsibility for any technical or printing errors and reserves the right to make any changes in the product and in this user manual without prior notice. Any such changes will be announced via the manufacturer's website www.koukaam.se.

The manufacturer does not provide warranties of any kind whatsoever with regard to any information given in this user manual or any derived warranties regarding product saleability or fitness for a specific purpose.

In particular, the manufacturer does not provide any warranties for defects caused by incorrect use of the product, failure to abide by the instructions and recommendations stated in the user manual and for any defects caused by unprofessional activities of third parties outside the manufacturer's authorized service shop.

We believe that you will be satisfied with our product. In case of any questions or comments relating to the functionality of the NETIO product, please do not hesitate to contact us.

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The KOUKAAM Team

KOUKAAM a.s.
Kaplanova 2252/8
Prague 4, 148 00
Czech Republic
www.koukaam.se

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